

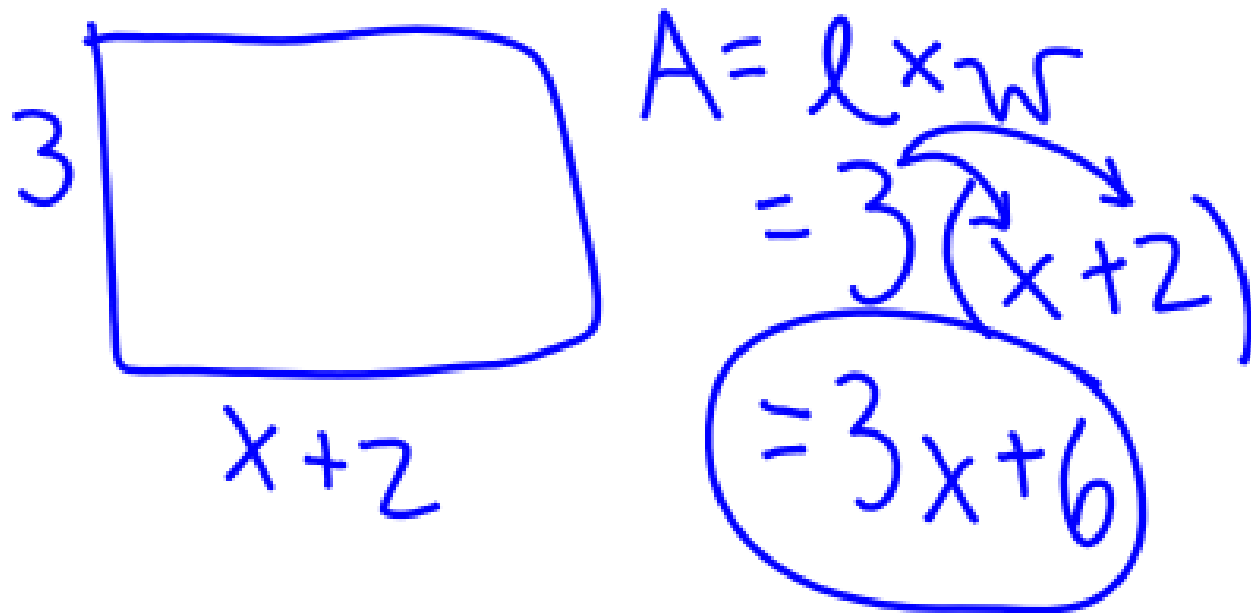
2.6 - The Distributive Property

To multiply $3(68)$ mentally, you could think of $3(68)$ as:

$$3(60 + 8) = 3(60) + 3(8) = 180 + 24 = 204$$

This is an example of the distributive property

Ex 1: Find the area of a rectangle whose width is 3 and whose length is $x + 2$.



THE DISTRIBUTIVE PROPERTY

The product of a and $(b + c)$:

$$a(b + c) = ab + ac$$


Example: $5(x + 2) = 5x + 10$


$$(b + c)a = ba + ca$$


Example: $(x + 4)8 = 8x + 32$

The product of a and $(b - c)$:

$$a(b - c) = ab - ac$$


Example: $4(x - 7) = 4x - 28$

$$(b - c)a = ba - ca$$


Example: $(x - 5)9 = 9x - 45$

Ex 2: $3(-2 + 3x)$

$$-6 + 9x$$

Ex 3: $-4(y - 2)$

$$-4y + 8$$

Ex 4: $10(3m - \frac{1}{2})$

$$30m - \frac{10}{2} = 30m - 5$$

Ex 5: $5y(n - 10)$

$$5yn - 50y$$

Ex 6: You are shopping for blue rays. You want to buy five blue rays for \$20.95 each. Use the distributive property to calculate the total cost mentally.

$$\begin{aligned} & 5(21 - .05) \\ &= 5(21) - 5(.05) \\ &= 105 - .25 \\ &= \$104.75 \end{aligned}$$

$$-x + 3y^2$$

-1 is the coefficient of x

3 is the coefficient of y^2

Like terms: terms in an expression that have the same variable raised to the same power

$$2x, 3x, 5y^2, 7y^2$$

Constant Terms: only numbers, no variables

$$3x^2 + 2x + 1$$

Simplify the following by Combining Like Terms

Ex 7: $11x + 13x$

$$= 24x$$

Ex 8: $6x^2 + 4 - 3x^2$

$$3x^2 + 4$$

Ex 9: $5 - 10(3 + x)$

$$5 - 30 - 10x$$

$$-25 - 10x$$

Homework: Worksheet 2.6

#2-32 even, 34-37